

## DEVELOPING A PROTOTYPE FOR SMART MICRO GRID STUDIES

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### ABSTRACT

In this paper, the studies about setting a smart micro grid laboratory, criterias taken into consideration, general and partial working modes, control unit design are dealt with. The prototype consists of a 3000w smart off grid inverter & charger, two 500w on grid invertors, eight PV panels, a 400w wind turbine, six storage batteries, a battery monitoring device, a power analyzer, an MPPT device, an CPS& internet communication module. In the general working mode an inverter & charger which has got an ability for energy management is used. In the partial working modes, ten different working modes are monitored. A Programmable Logic Controller is used for mode change operations on order to decrease possible problems.